

Catherine Dulac and Richard Axel
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In the claims:

Please cancel claims 1-28 and 33-93 without prejudice to applicants' right to pursue the subject matter of these claims in a future continuation or divisional application.

Please add new claims 96-99 as follows:

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--96. (New) An isolated nucleic acid comprising consecutive nucleotides encoding a vertebrate pheromone receptor protein, wherein the receptor protein comprises seven transmembrane domains and is further characterized by at least one of the following characteristics:

- (a) the loop between the second and third transmembrane domains of the protein, the third transmembrane domain, and the loop between the third and fourth transmembrane domains together comprise consecutive amino acids having the following sequence: -R, G, L or F, S or T or N, L, C or S, A or T, T or A or S, C, L or M, L, S or N or H, V or I, L or F, Q or W, A or T or M, I or F, I or T, L, S, P or S, R or K, S or K, S, C, L, A or T, K or T, F or Y, K, H or Y, K or N-(SEQ ID NO: 19);
- (b) the loop between the fifth and sixth transmembrane domains of the protein, and the sixth transmembrane domain together comprise consecutive amino acids having the following sequence: -K, A or S or V, S, P, E or Q, Q, R, A, T, R or Q or E, T or S, I, L or M, M or L or I, L, M or R, S or T, F or L, F, V or G, V or L-(SEQ ID NO: 20); and

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- (c) the seventh transmembrane domain of the protein comprises consecutive amino acids having the following sequence: -Y, A, T, V or I or L, S, P or S, F or L, V or L, F or L- (SEQ ID NO: 21).--
- 97. (New) The isolated nucleic acid of claim 96, wherein the receptor protein is characterized by at least two of the characteristics of (a) through (c).--
- 98. (New) The isolated nucleic acid of claim 97, wherein the receptor protein is characterized by all of the characteristics of (a) through (c).--
- 99. (New) The isolated nucleic acid of claim 96, wherein the nucleic acid encodes a protein selected from the group consisting of:
- i) VN1 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 8,
 - ii) VN2 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 9,
 - iii) VN3 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 10,
 - iv) VN4 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 11,

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- v) VN5 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 12,
- vi) VN6 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 13,
- vii) VN7 protein comprising consecutive amino acids having a sequence identical to the sequence set forth in SEQ ID NO: 14, and
- viii)a protein that shares between 47% and 87% amino acid sequence identity with any one of the proteins of i)-vii)...-